

Family: *Apocynaceae*

Taxon: *Araujia sericifera*

Synonym: *Araujia albens* G. Don
Araujia hortorum E. Fourn.
Araujia sericifera var. *hortorum* (E. Fourn.) L
Physianthus albens Mart.

Common Name: Bladder flower
Cape dandelion
Cruel plant
Moth catcher
Mothplant
Mothvine
Peruvian creeper

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation: H(HPWRA)
Status:	Assessor Approved	Data Entry Person:	Chuck Chimera	WRA Score 24
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	y
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)	
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	y
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	
403	Parasitic		y=1, n=0	n
404	Unpalatable to grazing animals		y=1, n=-1	y
405	Toxic to animals		y=1, n=0	y
406	Host for recognized pests and pathogens		y=1, n=0	n
407	Causes allergies or is otherwise toxic to humans		y=1, n=0	y
408	Creates a fire hazard in natural ecosystems		y=1, n=0	

409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	y
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 24

Supporting Data:

101	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Is the species highly domesticated? No] No evidence
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Species suited to tropical or subtropical climate(s) 2-High] "Moth vine (<i>Araujia sericifera</i> Brot.) (Syn. <i>A. hortorum</i> E.Fourn, <i>Pysianthus albens</i> Mart., <i>A. sericofera</i> Brot.) (Asclepiadaceae) is native to southern Brazil and Argentina (Forster and Bruyns 1992)."
202	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Quality of climate match data 2-High]
203	1998. Csurhes, S./Edwards, R.. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	[Broad climate suitability (environmental versatility)? Possibly Yes. Grows in temperate and subtropical climates] "This species is native to southern Brazil and has been recorded as a weed in South Africa and New Zealand (Holm et al. 1979). Joel and Liston (1986) recorded <i>A. sericifera</i> as a weed in Israel, where it has escaped cultivation and invaded orchards on the coastal plains. In the United States, <i>A. hortorum</i> is sold in the nursery trade and has naturalised in temperate and sub tropical regions. In Australia, the plant is widespread throughout the eastern States, particularly from south-east Queensland south along the coast of New South Wales, where it tends to be associated with rainforest remnants, vine scrubs and wet sclerophyll forests. It has a limited distribution in Victoria, where it has invaded riparian vegetation and damp sclerophyll forest. It does not appear to be in the Australian nursery trade."
203	2012. Dave's Gardern. PlantFiles: Cruel Plant, Moth Plant, Bladder Vine, Poor Man's Stephanotis - <i>Araujia sericifera</i> . http://davesgarden.com/guides/pf/go/31526/	[Broad climate suitability (environmental versatility)? Possibly No] "Hardiness: USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"
204	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Moth vine (<i>Araujia sericifera</i> Brot.) (Syn. <i>A. hortorum</i> E.Fourn, <i>Pysianthus albens</i> Mart., <i>A. sericofera</i> Brot.) (Asclepiadaceae) is native to southern Brazil and Argentina (Forster and Bruyns 1992)."
205	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Does the species have a history of repeated introductions outside its natural range? Yes] "It was originally introduced to gardens for its attractive white flowers and its curiosity value as a moth trap (Stearns 1887). It is listed as invasive in Australia (Kleinschmidt and Johnson 1979; Muyt 2001), New Zealand (Ward et al. 1999; Coulston 2002), Spain (Carretero 1989) and North America (Bellue 1948; Spellman and Gunn 1976). Moth vine is also recorded as naturalised in other countries (Forster and Bruyns 1992), including southern Africa (Dyer 1975), Israel (Danin 2000) and Turkey (Altinözlü and Dönmez 2003)."
205	2010. Coombs, G./Peter, C.I.. The invasive 'mothcatcher' (<i>Araujia sericifera</i> Brot.; Asclepiadoideae) co-opts native honeybees as its primary pollinator in South Africa. AoB PLANTS. plq021, doi:10.1093/aobpla/plq021: .	[Does the species have a history of repeated introductions outside its natural range? Yes] " <i>Araujia sericifera</i> (Apocynaceae Asclepiadoideae) is indigenous to tropical (including Peru, Argentina, Paraguay and Brazil) and temperate (Uruguay) regions of South America, and has become invasive in several countries in Europe (France, Greece, Italy, Portugal and Spain), Australia, New Zealand, North America, Israel and South Africa (Forster and Bruyns 1992; EMPPO 2008)."
301	2002. Sobrino, E./Sanz-Elorza, M./Dana, E.D./González-Moreno, A.. Invasibility of a Coastal Strip in NE Spain by Alien Plants. Journal of Vegetation Science. 13(4): 585-594.	[Naturalized beyond native range? Yes] "The alien plant species and the ecological factors that facilitate their invasion to a coastal strip in the Baix Camp region (Tarragona, E Spain) were studied. A detailed inventory of the area showed that 20% of the plant species, most of them from the American Continent, were aliens, many of which were strongly invasive." ... "Thus, within the riparian bed and the adjacent surroundings a large number of the neophytes showed appreciable invasive potential ability (established and pest), e.g. <i>Araujia sericifera</i> ,..."

301	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Naturalized beyond native range? Yes] "It was originally introduced to gardens for its attractive white flowers and its curiosity value as a moth trap (Stearns 1887). It is listed as invasive in Australia (Kleinschmidt and Johnson 1979; Muyt 2001), New Zealand (Ward et al. 1999; Coulston 2002), Spain (Carretero 1989) and North America (Bellue 1948; Spellman and Gunn 1976). Moth vine is also recorded as naturalised in other countries (Forster and Bruyns 1992), including southern Africa (Dyer 1975), Israel (Danin 2000) and Turkey (Altinözlü and Dönmez 2003)."
301	2007. Henderson, L.. Invasive, naturalized and casual alien plants in southern Africa: a summary based on the Southern African Plant Invaders Atlas (SAPIA). Bothalia. 37(2): 215–248.	[Naturalized beyond native range? Yes] "APPENDIX 4.—Summary of results for all naturalized and casual alien plants in the study area, Savanna Biome, Fynbos Biome, Forest habitats, Grassland Biome, Nama-Karoo Biome, Succulent Karoo Biome and watercourse/wetland habitats (cont.)" [<i>Araujia sericifera</i> is present in most biomes]
301	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Naturalized beyond native range? Yes] "Widely naturalised, particularly in the warmer temperate and sub-tropical regions of eastern Australia. It is most common in eastern New South Wales and south eastern Queensland. Less common or occasionally naturalised in the coastal districts of central Queensland, in inland New South Wales, in Victoria, in south-eastern South Australia and in the coastal districts of south western Western Australia. Also naturalised on Lord Howe Island and possibly naturalised in the ACT and Tasmania. Naturalised overseas in southern Europe, the Azores, southern Africa, New Zealand and southern USA (i.e. California and Georgia)."
302	. Timmins, S.M./Smale, M./Sullivan, J.J./Williams, P.A.. Environmental weeds along New Zealand roadsides: an initial assessment. Pp. 177-179 in Preston et al (eds) 15th Australian Weeds Conference proceedings. Weed Management Society of SA, Torrens Park	[Garden/amenity/disturbance weed? A disturbance weed with detrimental impacts to agriculture and the environment] "Even moth plant (<i>Araujia sericifera</i> Brot.), which has become an abundant weed of wastelands and scrub within Auckland City in the past two decades, was found in only two roadside plots near Pukekohe."
302	1997. Timmins, S.. Environmental Weeds Research Plan 1997–2006. Department of Conservation, Wellington, NZ	[Garden/amenity/disturbance weed? A disturbance weed with detrimental impacts to agriculture and the environment] "Weed of disturbed forest and spreading rapidly."
302	2012. Dave's Gardern. PlantFiles: Cruel Plant, Moth Plant, Bladder Vine, Poor Man's Stephanotis - <i>Araujia sericifera</i> . http://davesgarden.com/guides/pf/go/31526/	[Garden/amenity/disturbance weed? Yes] "I've had a horrible experience with this plant! I understand perfectly why it is called Cruel Plant. I picked up a seed pod from the Wild Animal Park in San Diego and planted the seeds. It sprouted easily and I planted the seedlings next to a trellis that I hoped this plant would grow onto. And grow it did, within a year it fully covered it and by the next year it started to produce seed pods. The pods, when ripe, open up and release hundreds of flying seeds into the air, with dozens of seed pods you begin to get inundated with seedlings everywhere. Trying to control the plant by cutting it back is hampered by the fact that it releases a copious amount of corrosive white sticky sap from every cut surface, which gets into your tools, and onto your body. Try to do this with the vines growing overhead on the trellis! You practically have to wear protective clothing to deal with this monster. I finally destroyed it about a year ago in a heroic battle, I still wage fights against the seedlings that pop up everywhere. This plant is not for a typical backyard in climates where it survives outside." [Comment from from gardener in San Diego, CA]
303	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Agricultural/forestry/horticultural weed? Yes] "Bladderflower has escaped cultivation as an ornamental and become a noxious pest in some regions of California, especially in areas where citrus is cultivated. Bladderflower generally thrives in citrus groves and can compete with trees for water, nutrients, and light. Plants grow extremely fast, and vines can grow over tree canopies within a couple of years. Significant infestations reduce fruit yields and interfere with tree maintenance."
303	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Agricultural/forestry/horticultural weed? Yes] "A weed of suburban bushland, open woodlands, forest margins, creekbanks, riparian vegetation, roadsides, fences, disturbed sites, waste areas, gardens, orchards, plantation crops, and occasionally also forestry plantations. It is mainly found in sub-tropical and warmer temperate regions, but may occasionally be found in cooler temperate and semi-arid areas."
304	2002. Auckland Regional Council. Auckland Regional Pest Management Strategy 2002-2007. Auckland Regional Council, Auckland, NZ	[Environmental weed? Yes] "It grows in a range of habitats including forest margins, disturbed forest, hedges, wasteland and urban gardens. It can become a dominant species in urban situations, and compete with and replace native plant species in disturbed or low forest, scrub forest margins and in coastal areas."

304	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Environmental weed? Yes] "This vigorously growing vine is invasive because it has dense foliage and smothers native shrubs and trees. Dense infestations prevent regeneration of native overstorey species. The heavy weight of fruiting vines can break branches of trees."
304	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Environmental weed? Yes] "In New Zealand the species poses a particularly serious weed problem in the North Island, where it is present in all regional areas, and has been given the highest weed-potential ranking in both Northland and Auckland regions (Winks and Fowler 2000). In Australia, moth vine is invasive in coastal New South Wales and south eastern Queensland, where it is ranked 26th in importance as an environmental weed (Batianoff and Butler 2002) and has naturalised throughout most of the region (Stanley and Ross 1986), forming persistent populations. It has limited distributions in Victoria where it is an emerging weed (Muyt 2001), and is found occasionally in South Australia (Pearce 1986) and the ACT (Muyt 2001). Habitats where it is most common include disturbed rainforest edges and remnants (Joseph 1999) and forestry plantations on red loamy soils (Everist 1981). Moth vine is also problematic in riparian areas, moist forests and woodlands (Muyt 2001), disturbed coastal lowlands (G. Vivian Smith, pers. obs.), roadsides and wastelands (Everist 1981)."
304	2009. Inkson, T./Smith, M./Strachan, I.. Garden Escapees & Other Weeds of Bushland & Reserves. Great Lakes Council, Forster, NSW	[Environmental weed? Yes] "Garden escapee that smothers shrubs and small trees, suppressing their growth. Weed of wasteland and forests adjoining settlement, mainly in coastal higher rainfall areas." ... "Status: Environmental Weed"
304	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Environmental weed? Yes] "Moth vine (<i>Araujia sericifera</i>) is regarded as a significant environmental weed in New South Wales and Queensland, and a minor environmental weed in Victoria and South Australia. It was recently listed as a priority environmental weed in three Natural Resource Management regions. This species climbs up any supporting vegetation and its dense growth eventually smothers smaller trees and shrubs. It can bring down these plants with the weight of its tangled growth and may even impede larger trees in the overstorey. Moth vine (<i>Araujia sericifera</i>) also spreads over the ground, smothering groundcover plants and preventing the regeneration of overstorey species. Hence, it may act as transformer species, altering the nature of the vegetation where it invades."
305	1998. Csurhes, S./Edwards, R.. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	[Congeneric weed? No evidence] "There has been some confusion regarding the taxonomy of <i>Araujia hortorum</i> in Australia and most specimens have been described as <i>A. sericifera</i> . Forster and Bruyns (1992) concluded that <i>A. sericifera</i> is synonymous with <i>A. hortorum</i> ."
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] <i>Araujia hortorum</i> is listed as an environmental weed, but is also a synonym for <i>A. sericifera</i>
401	1993. Hickman, J.C.. The Jepson manual: higher plants of California. U. Cal. Press, Berkeley	[Produces spines, thorns or burrs? No] "Stems twining, less than 12 m, soft tomentose when young. Leaf: opposite, petiole less than 1 cm; blade 5-12 cm, upper surface glabrous, lower generally densely puberulent."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	1998. Csurhes, S./Edwards, R.. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	[Parasitic? No] Family: Asclepiadaceae [currently Apocynaceae]
404	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?weedID=95	[Unpalatable to grazing animals? Yes] "Poisonous and irritant-inducing (not grazed)."
405	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Toxic to animals? Yes] "This species is considered to be poisonous to livestock (e.g. cattle), domestic animals (e.g. poultry and dogs) and humans. Contact with its milky sap also causes skin and eyes irritations, and occasionally even severe allergic reactions in susceptible people. "
405	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?weedID=95	[Toxic to animals? Yes] "Poisonous and irritant-inducing (not grazed)."
406	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Host for recognized pests and pathogens? No] Not listed among detrimental impacts of this vine

406	2012. Hartley Botanic. Undercover With Bob Flowerdew - Araujia, the Cruel Plant. http://www.hartley-botanic.co.uk/gardening-tips/bob-flowerdew/araujia-the-cruel-plant	[Host for recognized pests and pathogens? No] "...seldom prone to pests or disease..."
407	2005. Gaig, P./Gázquez, V./Lombardero, M./Botey, E./García-Ortega, P.. Moth plant (<i>Araujia sericifera</i>) allergy. Allergy. 60: 1092–1093.	[Causes allergies or is otherwise toxic to humans? Possibly in susceptible individuals] "A 64-year-old shoemaker and avid gardener in his free time, was referred for rhinoconjunctivitis and generalized urticaria after contact with moth plant latex. The patient had bronchial asthma since childhood and, after a bronchospasm during a dental procedure, was diagnosed of hypersensitivity to <i>H. brasiliensis</i> latex by positive skin prick test and specific immunoglobulin E (IgE; 4.85 kU/l). He avoided exposure to latex in his job and in daily life and was prescribed fluticasone and terbutaline."
407	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Causes allergies or is otherwise toxic to humans? Yes] "Bladderflower foliage and, to a lesser degree, fruits are reported to contain serotonin and other compounds that can cause nonfatal digestive tract irritation and neurological disturbances when ingested in sufficient quantity. However, toxicity problems have not been reported in North America. Plants also contain an enzyme in the sap that can dissolve skin and cause severe sores if not quickly washed off."
408	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Creates a fire hazard in natural ecosystems? Possibly could act as a fuel ladder, but no evidence that this vine increases fire risks] "In severe infestations moth vine can form a dense canopy over existing vegetation, eventually dominating and sometimes crushing native vegetation and preventing native plant regeneration (Muyt 2001; Coulston 2002)."
409	2007. Henderson, L.. Invasive, naturalized and casual alien plants in southern Africa: a summary based on the Southern African Plant Invaders Atlas (SAPIA). Bothalia. 37(2): 215–248.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Moth plant prefers loose, fertile soils, in warmer climates in areas of moderate to high rainfall, and establishes most freely in semi-shade growing up into the full light on the canopy of shrubs, hedges and small trees."
409	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?WeedID=95	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Tolerant of shade, even as a seedling..."
410	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?WeedID=95	[Tolerates a wide range of soil conditions? Yes] "...very tolerant of drought or damp, wind, salt, many soil types,..."
411	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Climbing or smothering growth habit? Yes] "In severe infestations moth vine can form a dense canopy over existing vegetation, eventually dominating and sometimes crushing native vegetation and preventing native plant regeneration (Muyt 2001; Coulston 2002)."
411	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Climbing or smothering growth habit? Yes] "Fast-growing perennial vine with milky juice."
412	2002. Coulston, G.J.. Control of invasive plants on the Poor Knights Islands, New Zealand. Pp 79-84 in Veitch, C.R. & Clout, M.N. (eds). Turning the Tide: The Eradication of Invasive Species. IUCN, Gland, Switzerland	[Forms dense thickets? No, but dense seedling mats may impede native seedling recruitment] "In 1998 a large infestation of moth plant (<i>Araujia sericifera</i>) was found on Cuvier Island. It was removed, but the next year an extraordinarily thick carpet of seedlings appeared. Despite five re-treatments of the dense seedling mat, seeds still continue to germinate. It will be hard to eradicate moth plant from the island because it was already well established when it was found (J. Roxburgh pers. comm.). Similarly, moth plant was not recorded on Hen and Chickens Islands until 1996 but by then the main infestation was already 0.2 ha (G. Coulston pers. comm.). Delayed detection, plus continual re-invasion from the mainland, means eradication is unlikely."
412	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Forms dense thickets? Smothering vine] "This vigorously growing vine is invasive because it has dense foliage and smothers native shrubs and trees. Dense infestations prevent regeneration of native overstorey species. The heavy weight of fruiting vines can break branches of trees."
501	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Aquatic? No] "Wind is the predominant dispersal vector, but the species is also reportedly dispersed by water (Muyt 2001), probably because it is found colonising riparian and low-lying areas that may be infrequently inundated." [Not aquatic, but invades riparian areas and is likely dispersed by water]
502	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Grass? No] "Apocynaceae subfamily: Asclepiadoideae tribe: Asclepiadeae subtribe: Oxypetalinae. Also placed in: Asclepiadaceae"

503	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] "Apocynaceae subfamily: Asclepiadoideae tribe: Asclepiadeae subtribe: Oxypetalinae. Also placed in: Asclepiadaceae"
504	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Under certain conditions, severed pieces of underground stems or crowns can produce new roots and shoots." ... "Reproduces by seed and vegetatively from severed underground stems or crowns." [Not a true geophyte]
601	2012. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence found
602	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Produces viable seed? Yes] "We investigated germination, seedling emergence and seed persistence of the invasive moth vine (<i>Araujia sericifera</i> Brot.) under controlled and field conditions in south eastern Queensland. Fresh seed showed high viability (99.5%) and germinated readily, with 97.2% of all recorded germinations occurring within 14 days. Mean germination rates ranged from 74 to 100% across the range of temperature (10/20°C, 15/25°C and 20/30°C alternating 12-h thermoperiods) and light (0- and 12-h photoperiods) treatments."
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2010. Coombs, G./Peter, C.I.. The invasive 'mothcatcher' (<i>Araujia sericifera</i> Brot.; Asclepiadoideae) co-opts native honeybees as its primary pollinator in South Africa. AoB PLANTS. plq021, doi:10.1093/aobpla/plq021: .	[Self-compatible or apomictic? Yes] " <i>Araujia sericifera</i> reproduces successfully in South Africa due to a combined ability of this species to attract and exploit native honeybees as its pollinators and of individual plants to set fruit from pollinator mediated self pollination." ... " <i>Araujia sericifera</i> is, however, genetically self-compatible and capable of pollinator-facilitated self pollination (geitonogamy), a trait present in most invasive species (van Kleunen et al. 2008), but relatively rare in the Asclepiadoideae, although this mode of reproduction is known from some weedy North American milkweeds (e.g. <i>A. exaltata</i> , <i>A. speciosa</i> , <i>A. currassavica</i> and <i>A. fruticosa</i> ; Wyatt and Broyles 1997; Lipow et al. 1999; Finer and Morgan 2003). The ability of <i>A. sericifera</i> to self pollinate could facilitate reproduction in the early stages of invasion, although the tendency for geitonogamous pollinations to initiate and mature less fruit leads us to conclude that in larger, well-established populations with relatively high and consistent pollen transfer, most fruit set is likely to come from cross-pollinations carried out by honeybees."
605	2010. Coombs, G./Peter, C.I.. The invasive 'mothcatcher' (<i>Araujia sericifera</i> Brot.; Asclepiadoideae) co-opts native honeybees as its primary pollinator in South Africa. AoB PLANTS. plq021, doi:10.1093/aobpla/plq021: .	[Requires specialist pollinators? No] "We found that native honeybees (<i>Apis mellifera</i>) were the main pollinators of <i>A. sericifera</i> in South Africa. Visiting moths are unimportant pollinators despite being attracted by the pale colour and nocturnal scent of the flowers." ... " <i>Araujia sericifera</i> is pollinated by honeybees in Australia (Coleman 1935) and bumble bees (<i>Bombus</i> spp.) and Scoliid wasps (<i>Scolia</i> spp.—Scoliidae) in Europe (Romeo 1933). Several notes and papers have enumerated insects that visit the flowers of <i>A. sericifera</i> in other countries (see Romeo 1933 and references therein; Hicken 1928; Coleman 1935), although records from the native range are limited to a single observation (Morong 1889)." ... "We have shown support for our hypothesis that <i>A. sericifera</i> has successfully co-opted a native generalist pollinator (honeybee) in its invaded range in South Africa. The high pollination success of <i>A. sericifera</i> suggests that it does not suffer pollination failure in South Africa and consistently maintains relatively high levels of PTE throughout several flowering seasons."
606	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Reproduction by vegetative fragmentation? Yes] "Under certain conditions, severed pieces of underground stems or crowns can produce new roots and shoots." ... "Reproduces by seed and vegetatively from severed underground stems or crowns."
607	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Minimum generative time (years)? 2+] "Anecdotal reports suggest that rapidly growing seedlings can take as little as 12 months to flower and set seed (Bellue 1948); however, 24–36 months has been reported in Australian weed populations (Muyt 2001)." ... "Our study suggests that maintenance of a seed bank is dependent on frequent (i.e. yearly) additions. The highly germinable nature of moth-vine seeds, in conjunction with high growth rates, can result in plants that are capable of contributing to the seed bank in 12–18 months. This suggests that short term (24 month) control efforts that kill mature plants prior to seed production, in addition to seedlings emerging from the seed bank, could lead to successful control at a local level, providing inputs to the seed bank from external sources are also prevented."
607	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Minimum generative time (years)? Possibly 1] "Plants usually produce seed the first season."

701	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Propagules likely to be dispersed unintentionally? Yes] "This plant reproduces mainly by seed, which are easily spread by wind and also float on water. Dispersal of seeds can also occur in dumped garden waste and contaminated fodder."
701	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?WeedID=95	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Potentially] "Wind spreads the seed from gardens, roadsides, orchards, hedges, plantations, vacant and industrial land. " [Hairs on seeds may allow them to adhere to clothing, shoes or equipment]
702	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Propagules dispersed intentionally by people? Yes] "Bladderflower has escaped cultivation as an ornamental and become a noxious pest in some regions of California, especially in areas where citrus is cultivated."
703	2011. Queensland Government. Weeds of Australia - Moth vine, <i>Araujia sericifera</i> . http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Araujia_sericifera.htm	[Propagules likely to disperse as a produce contaminant? Potentially] "This plant reproduces mainly by seed, which are easily spread by wind and also float on water. Dispersal of seeds can also occur in dumped garden waste and contaminated fodder."
704	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Propagules adapted to wind dispersal? Yes] "Moth vine is a twining, perennial vine with thin woody stems that grows to less than 12 m. Flowers are produced during summer and autumn. They mature to produce pear shaped, 6–10 cm long, greyish-green fruit (a follicle), with coarse longitudinal ridges that split open to release several hundred seeds (n = 10 fruits, containing 300–550 seeds, mean = 421 seeds; G. Vivian-Smith, unpubl. data). Individual seeds weigh 9.62 ± 0.12 mg (mean ± s.e., n = 80; G. Vivian-Smith, unpubl. data). In south eastern Queensland, mature (dehiscing) fruits have been noted on vines from December through to August, suggesting that seeds can be dispersed during much of the year. A silky coma is attached to each seed and acts like a parachute to aid wind dispersal."
705	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Propagules water dispersed? Yes] "In an additional experiment testing the capacity of seeds for secondary dispersal by water, the mean floating time of seeds was 15.4 days, suggesting that water could act as a secondary dispersal vector, contributing to long-distance dispersal. We recommend that surveillance methods for detecting moth vine populations should consider both water flow patterns and wind direction." ... "Wind is the predominant dispersal vector, but the species is also reportedly dispersed by water (Muyt 2001), probably because it is found colonising riparian and low-lying areas that may be infrequently inundated. Seeds of other species within the Asclepiadaceae have shown a capacity to remain both buoyant and viable for lengthy periods (weeks to months) (Edwards et al. 1994)."
706	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Propagules bird dispersed? No] "Flowers are produced during summer and autumn. They mature to produce pear shaped, 6–10 cm long, greyish-green fruit (a follicle), with coarse longitudinal ridges that split open to release several hundred seeds (n = 10 fruits, containing 300–550 seeds, mean = 421 seeds; G. Vivian-Smith, unpubl. data). Individual seeds weigh 9.62 ± 0.12 mg (mean ± s.e., n = 80; G. Vivian-Smith, unpubl. data). In south eastern Queensland, mature (dehiscing) fruits have been noted on vines from December through to August, suggesting that seeds can be dispersed during much of the year. A silky coma is attached to each seed and acts like a parachute to aid wind dispersal."
707	2002. Auckland Regional Council. Auckland Regional Pest Management Strategy 2002-2007. Auckland Regional Council, Auckland, NZ	[Propagules dispersed by other animals (externally)? Yes] "Seeds can blow up to 100m in the wind but can also be spread on animals and clothing."
707	2012. Weeds Australia. Weed Identification - <i>Araujia sericifera</i> . Australian Weeds Committee, http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&card=V06	[Propagules dispersed by other animals (externally)? Yes] "Fruit a blue-green pod initially, turning brown and woody with age, splitting to release seeds. Seeds black, numerous, about 4 mm long and ending in a tuft of white silky hairs about 2.5 cm long." ... "Dispersal: Spread by wind-blown seeds." [Hairs may potentially adhere to animal fur and allow for occasional external dispersal]
708	2002. Auckland Regional Council. Auckland Regional Pest Management Strategy 2002-2007. Auckland Regional Council, Auckland, NZ	[Propagules survive passage through the gut? No] "Seeds can blow up to 100m in the wind but can also be spread on animals and clothing." [No evidence that seeds are dispersed internally or would survive passage through the guts of animals if consumed]
801	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Prolific seed production (>1000/m ²)? Potentially] "Seed production is prolific, except in areas where temperatures drop below freezing in early fall."

802	2005. Vivian-Smith, G./Panetta, F.D.. Seedling recruitment, seed persistence and aspects of dispersal ecology of the invasive moth vine, <i>Araujia sericifera</i> (Asclepiadaceae). Australian Journal of Botany. 53(3): 225–230.	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Seed persistence under field conditions was low, declining rapidly to 3.9% at 6 months and to 0.67% at 24 months. Moth vine's capacity to germinate readily and the rapid depletion of seeds under field conditions indicate that the species has a transient seed bank in south-eastern Queensland." ... "Our results suggest that moth vine is characterised by a transient (<12 month) seed bank, one that is largely depleted through seedling emergence and retains less than 1% of viable seeds at 12 months. Very low levels (0.67%) of dormant, but viable, seeds were detected at 24 months, suggesting that induced dormancy may occur, but at a very low frequency."
802	2010. Gordon, D.R./Mitterdorfer, B./Pheloung, P.C. et al.. Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly. 25(2): 56-74.	{Evidence that a persistent propagule bank is formed (>1 yr)? No} "Greater than 1% of the seed should remain viable in the soil for >12 months after its production."
803	2003. Weber, E.. Invasive Plant Species of the World. A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Well controlled by herbicides? Possibly] "Larger stems are cut at ground level, and the cut stumps treated with herbicide. Large infestations may be foliar sprayed. A follow-up programme is necessary to control regrowth and seedlings."
803	2012. Weedbusters. <i>Araujia sericifera</i> . http://weedbusters.co.nz/weed_info/detail.asp?weedID=95	[Well controlled by herbicides? Possibly] "Stump swab (best in summer- autumn): Tordon Brushkiller (100ml/L) or Banvine (200ml/L) or Yates Woody Weedkiller (400ml/L). Remove all pods and dispose of at refuse transfer station, burn or bury deeply. Leave remaining cut material on site to rot down. 3. Spray (summer-autumn): Tordon Brushkiller (30ml/10L) or Banvine (12ml/L) or Yates Woody Weedkiller (24ml/L)." [May require retreatment, and habit may make treating all parts of plant difficult]
804	2007. DiTomaso, J.. Weeds of California and Other Western States, Volume 1. ANR Publications, Oakland, CA	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Improper disking can disperse underground stem and crown fragments of mature plants, which can develop into new vines under favorable conditions."
804	2009. Kubiak, P.J.. Fire responses of bushland plants after the January 1994 wildfires in northern Sydney. Cunninghamia. 11(1): 131-165.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Appendix 1. Observations on fire responses (after 100% leaf scorch) of vascular plants in the Lane Cove River (LCR) (observations mainly Jan 1994 – Oct 1999) and Narrabeen Lagoon (NL) (Mar – Oct 1994) catchments, following the fires of January 1994." [<i>Araujia sericifera</i> = R = majority of adult plants resprouted after the fires]
805	2006. Waipara, N.W./Winks, C.J./Gianotti, A.F./Villamil, C.B./Villamil, S.C./Delhey, R./Kiehr, M./Traversa, M.G./Carpintero, D.L.. Surveys for potential biocontrol agents for moth plant in New Zealand and Argentina. New Zealand Plant Protection. 59: 18-22	[Effective natural enemies present locally? None in Hawaiian Islands, but potentially in New Zealand] "Moth plant, <i>Araujia sericifera</i> , is an environmental weed in northern regions of New Zealand. Due to its rapid spread, its ability to cause substantial damage to natural ecosystems and the increasing cost of conventional control methods, a biological control programme was initiated. A survey of the plant in New Zealand found that damage attributed to either disease or insect herbivory was minimal with little biocontrol potential. Botanical, pathogen and insect surveys were subsequently initiated in the native South American range to locate and identify potential agents for classical biocontrol. Potential agents associated with plant damage were collected. Damage was mostly due to pathogenic attack with 90% of moth plant populations showing disease symptoms. To date, eight fungal pathogens have been associated with plant die back, leaf necroses and a severe fruit rot. At least two mosaic (virus) diseases were also found, frequently associated with colonies of the aphid, <i>Aphis nerii</i> ."